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THE SEVENTEEN-YEAR CICADA, BROOD XV.

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In his Seventh Report covering the summer of 1890, Dr. J. A. Lintner, New York State Entomologist, wrote: "The appearance in June last, at Tivoli, N. Y., of the periodical Cicada, *Cicada septendecim*, although in limited numbers, and so far as known not elsewhere observed, was an event of unusual interest to entomologists. It was thought that all the broods that belong to the more densely populated portions of the United States were definitely known and their limits accurately defined. Of these, six pertain to the state of New York;¹ no one of which was due the present year. The Tivoli appearance was therefore unannounced and unexpected. It could not be regarded as a residual of the brood of 1889 [now Brood 14. 1940.], for this only occurs within the state in portions of Long Island, nor as an advance of the well known Hudson river brood, due in 1894 [now Brood 2. 1928-1945]. At the present, it remains as an entomological enigma. Subsequent examinations of records may show it to be the remnant of an unrecognized brood, which in several of its recurrences may have been dwindling in numbers until it is now on the verge of extinction."

On page 297 of the same report Dr. Lintner states that Mr. Frederick Clarkson had written to him on June 7 from Tivoli-on-Hudson, that on that day he had captured on the piazza both sexes of *Cicada septendecim*, "and that at the time of writing (noon) the hum of the insects was quite loud." Dr. Lintner also reported the presence in 1890 of the Seventeen-Year Cicada at Galway, Saratoga County, New York, based on an item in the *Albany Evening Journal*.

In 1890 the Seventeen-Year Cicada also appeared on Staten

¹ Eleven broods are now known to occur in the state, some to a very limited extent.

MAR 28 1942

Frederick Clarkson had written to him on June 7 from Tivoli-on-Island. Three pupal skins and an adult were found at New Brighton, and Mr. Charles W. Leng found one on an apple tree near the Moravian Cemetery, as recorded in the Proceedings, Natural Science Association of Staten Island, February 10, 1894, and in the March, 1894, number of the Journal N. Y. Entomological Society. Also in 1890, Prof. John B. Smith reported that the periodical cicada had been taken by several Newark collectors, and had been found in Cape May County, New Jersey.

With the passing years it became apparent that a more simple and practical enumeration of the broods of the periodical cicada than the one in use would have to be adopted in order to prevent confusion, and in Bulletin 18, New Series, U. S. Dept. of Agriculture, Dr. C. L. Marlatt proposed a workable re-numbering of the broods. Thus we have the broods of *septendecim* numbered from 1 to 17, and those of the race *tredecim* from 18 to 30 inclusive. This arrangement, coupled with the year of appearance, serves to clearly designate and separate the different broods.

In applying the new nomenclature it was found, that based on later information, several new broods of the Seventeen-Year race would have to be considered, even though some of the broods were small and unimportant. Under this head came the cicadas that appeared in 1890 and their descendants to appear in 1907, which were designated Brood XV by Dr. Marlatt in his new arrangement. In "The Periodical Cicada," Bulletin No. 71, U. S. Dept. of Agriculture, 1907, a map is given showing the distribution of Brood XV, founded on the 1890 records mentioned, and the possible one from Halifax County, North Carolina.

The summer of 1907 was awaited with much interest; would the Seventeen-Year Cicadas re-appear and thus more firmly establishing the recorded existence of Brood 15?

The cicadas came and in the Proceedings of the Staten Island Association of Arts and Sciences, October, 1907, the writer recorded that on March 31, Mr. Alanson Skinner had given him a pupa found under a stone at Woodrow, Staten Island; that on June 22 he had heard several singing in the trees at Woodrow, and found two pupal skins. On the following day a cicada was heard at Watchogue, at the other end of the Island. Later in the Summer, in the Clove Valley, he and Mr. Henry Bird had each found a pupa skin of the Seventeen-Year Cicada, and Mr. Charles P. Benedict had collected many cast skins and adult cicadas about his home on the Manor Road. In New Jersey the Seventeen-Year Cicadas occurred at Westfield, Plainfield and Newfoundland.

In 1924 we again hoped to find on Staten Island and in its vicinity some evidence of Brood XV, and on June 23, were pleased to hear about six cicadas singing a short distance to the south of the railroad station at Oakwood Heights. Two were also seen in the top branches of young trees. On the same day Mr. Morris Gerst found the right fore wing of a Seventeen-Year Cicada near Greenleaf Avenue, West New Brighton. In New Jersey, Mr. Frederick M. Schott, found on June 16, a dead Seventeen-Year Cicada at Murray Hill.

In 1941 the evidence for Brood XV was quite satisfactory and specimens of adult cicadas were collected at early dates. On May 17, Mr. Carol Stryker found a female cicada at 90 Slosson Avenue, West New Brighton, and on the following day Mr. Harold Brown collected a male and pupa skin in Barrett Park, Staten Island. As the season progressed additional cicadas and pupal skins were found about their home by Mr. and Mrs. K. O. Nesslinger, 960 Fingerboard Road, or were heard singing at West New Brighton. The writer heard them singing at Oakwood close to the 1924 locality, and in the same apple orchard at Woodrow, where they were found in 1907. In New Jersey Mr. Frederick M. Schott heard a Seventeen-Year Cicada singing at Upper Montclair, and found a pupal skin on May 29. Mr. Howard Cleaves heard a number of the cicadas singing near Wanaque Reservoir, June 8. The cicadas were also reported as occurring in numbers near Greenwood Lake on June 7 by Mr. Ernest Shoemaker. On the occasion of the field day of the New York Entomological Society at West Nyack, New York, a Seventeen-Year Cicada was heard singing by the writer, and Mr. Max Kisliuk found a cast skin on a white birch.

It will be seen from the evidence that the doubts expressed by Dr. Lintner in 1890 concerning the cicada brood of that year have been largely settled, and there is certainly a Brood XV of *Magicicada septendecim*, which, however, appears to be one of the smallest broods known. It is no doubt related to the large brood XIV, which appeared as expected in 1940 over an extended area in the eastern and central States. Brood XIV was found in great numbers on parts of Long Island in 1940, but no Seventeen-Year Cicadas were collected on Staten Island in that year.

The map showing the distribution of Brood XV, given on page 61 of the bulletin published by the U. S. Department of Agriculture in 1907, still remains an accurate record of the known distribution of the brood.